DRAFT WORK PLAN

WEST DITCH AREA REMOVAL ACTION
BAYOU VERDINE AREA OF CONCERN

Prepared for:

CONOCO, Inc. and Sasol North America, Inc.
Westlake, Louisiana

October 29, 2002
URS File No. 19226530.00001

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ATTACHMENTS

Conoco, Inc. and Sasol North America, Inc. (Sasol, formerly CONDEA Vista Company) entered into an Administrative Order on Consent with the United States Environmental Protection Agency (USEPA) to address the West Ditch Area of the Bayou Verdine Area of Concern of the Calcasieu Estuary (the "West Ditch AOC"[1]). This West Ditch Area Work Plan (this "Work Plan") has been prepared in accordance with the requirements of the West Ditch Area AOC and is hereby submitted to USEPA for approval. This Work Plan describes the major work elements that will be performed to implement the West Ditch Area Removal Action (the "Removal Action"). The following supporting documents are attached hereto and incorporated herein by reference:

- Attachment 1 – Quality Assurance Project Plan (QAPP) – Describes the administrative management of the project including project personnel, authorities and responsibilities, lines of communication and document tracking. It includes sampling and analysis procedures, quality assurance/quality control requirements, data validation and chain-of-custody requirements. The QAPP also includes the material testing procedures and acceptance criteria for the barrier system and cover components.

- Attachment 2 – Regulatory Compliance Plan – Describes the Applicable or Relevant and Appropriate Requirements (ARARs) and the procedures for meeting the substantive requirements of any permits.

- Attachment 3 – Waste Management Plan – Describes procedures for sampling waste and the criteria for waste classification. The plan also describes waste handling procedures, the layout for the waste staging and loading areas, and the procedures for manifesting and tracking the loads.

- Attachment 4 – Health and Safety Plan – Site Health and Safety Plan (HASP) that complies with 29 CFR 1910.120 and provides an air monitoring program.

- Attachment 5 – Emissions Control Plan – Describes methods to control volatile emissions from active work areas and material treating/staging areas. The emissions control plan will be integrated with the air monitoring procedures described in the HASP.

[1] Administrative Order On Consent for Removal Action; In the Matter of: West Ditch Area of Bayou Verdine, an Area of Concern of the Calcasieu Estuary Site, Calcasieu Parish, Louisiana; Conoco, Inc. and Sasol North America, Inc., Respondents; U.S. EPA Region 6; CERCLA Docket No. 06-2002-2758.

- Attachment 6 – Contingency Plan – Describes the procedures to minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water. The contingency plan provides detailed procedures to be followed in the event of a spill including, notification, containment and cleanup. The plan also describes the procedures to be followed for movement of equipment and personnel from low-lying areas during a high water event.

- Attachment 7 – Storm Water Pollution Prevention Plan (SWPPP) for Construction Activities – Describes methods and procedures to control discharge of pollutants into storm water runoff from the removal activities. Actions to control erosion and sedimentation are included as Best Management Practices (BMPs) in the SWPPP.

Bayou Verdine is a wetland bayou located within the Calcasieu Estuary southwest of the city of Westlake and slightly northwest of the city of Lake Charles in Calcasieu Parish. Bayou Verdine's headwaters originate in a predominately agricultural area immediately north and northwest of the Conoco and Sasol facilities and flow in a generally south-southeast direction, subject to tidal influences, through an industrialized area before entering Calcasieu River at Coon Island Loop (Figure 2-1).

The Bayou Verdine Area of Concern is defined as the lower 2.9 miles of Bayou Verdine. It is generally bounded downstream at its confluence with the Calcasieu River at Coon Island Loop, and is bounded upstream generally at a point approximately 0.5 mile upstream of Old Trousdale Road. The Bayou Verdine Area of Concern includes the Bayou Verdine channel and its tributaries and each of their associated surface water, sediments, soil, biota, adjoining shoreline and banks, riparian habitats, and wetlands. The area consists of low-lying flatlands at elevations generally less than 20 feet National Geodetic Vertical Datum (NGVD). The topography slopes towards Bayou Verdine from both sides with elevations ranging from 10 to 15 feet NGVD away from the bayou to 5 feet NGVD or less at the bayou. The water depth in the bayou ranges from less than 6 feet to between 6 and 8 feet.

During the Nature and Extent Investigation (ENRTIX, 1999) elevated concentrations of 1,2-dichloroethane (EDC) were found in the sediments of Bayou Verdine near its confluence with the West Ditch (referred to as the West Ditch Area). In the remainder of the bayou, EDC was detected in only four sediment samples with concentrations ranging from 11 to 16 µg/kg. Subsequent sediment investigations by URS Corporation confirmed the results of this ENTRIX investigation. The location of the West Ditch Area in relation to the Bayou Verdine Area of Concern is shown on Figure 2-2.

The Removal Action will be implemented to protect human health and the environment from potential risks that may arise from the presence of site constituents within the West Ditch Area. The limits of the Removal Action were defined based on the human health risk assessment (HHRA) and baseline ecological risk assessment (BERA) (ENTRIX, 2001a and 2001b, respectively). The HHRA provided a conservative evaluation of the potential risk to workers from accidental exposure to the sediments by falls into the West Ditch Area. Based on this evaluation, the estimated potential noncarcinogenic risks are in the acceptable range of 0.003 to 0.2 for the average (AVG) and reasonable maximum exposure (RME) scenarios, respectively. The estimated potential carcinogenic risk ranges from 6×10^{-8} to 2×10^{-6} for the AVG and RME exposure scenarios, respectively. A majority of the hypothetical risk is attributed to dermal contact with EDC in the sediments. The assumptions and exposure factors used to develop these scenarios are presented in the HHRA. A sediment removal action concentration goal was calculated using the RME exposure factors and a conservative target carcinogenic risk level of 1×10^{-6}. The calculated sediment removal action concentration for EDC in the West Ditch Area is 289 mg/kg (wet weight)[2].

The BERA addresses potential exposure to ecological receptors. The EDC concentrations observed in the sediment resulted in hazard quotients (HQs) in the range of 1 to 5 for the heron, kingfisher and muskrat. These risk estimates were driven solely by incidental sediment ingestion and are based on exposure to the maximum detected sediment concentration. HQ's were all below unity using the average sediment concentration of 1,219 mg/kg (wet weight), which is well above the removal action concentration of 289 mg/kg for protection of human health. Therefore the 289 mg/kg removal action concentration will also be protective of the bird and mammal receptors.

The estimated horizontal extent of sediments within Bayou Verdine that are impacted at concentrations at or above the 289 mg/kg removal action concentration is from approximately 30 feet upstream of the bridge at Old Trousdale Road to approximately 160 feet downstream of the bridge. Within the West Ditch, the estimated extent at or above 289 mg/kg is about 75 feet upstream of its confluence with Bayou Verdine. To provide added protectiveness, the limits of the Removal Action described herein will extend beyond the limits of the 289 mg/kg removal action

[2] The removal action concentration was calculated by ENTRIX Inc. based on an industrial worker being exposed to EDC in sediment under the RME exposure factors from the HHRA.

concentration. The removal action limits are shown on Figure 3-1 and encompass an area of approximately 23,400 square feet.

Sediment thickness in the West Ditch Area ranges from about 1.5 to 3.5 feet. The sediment is described as loose, black, silt, high in natural organic content. The underlying clay is described as light brown to gray and very stiff. The sediments and the underlying clay have been impacted by EDC. Generally, the highest concentrations occur in the upper 0.5 feet of the clay. The Removal Action will include the sediments and the upper 0.5 feet of clay. Assuming a removal depth of three feet throughout the West Ditch Area, the estimated volume of sediments to be addressed by the Removal Action is 2,600 in-place cubic yards.

A range of removal action alternatives was considered for the West Ditch Area. The selected alternative as described in USEPA's Action Memorandum for the West Ditch Area (the "Action Memorandum") is Removal and Offsite Incineration/Disposal. Sediments and clay will be removed from the West Ditch Area and transported offsite for incineration/disposal. A barrier system and cover will then be placed over the underlying clay. The major work elements for the West Ditch Area Removal Action are described below.

4.1 TASK NO. 1 – SITE PREPARATION

Task 1 will consist of preparatory work and operations necessary for the movement of personnel, equipment, supplies and incidentals onto and off of the project site and construction of the roads and staging areas. Figure 4-1 shows the general site layout. The project area is generally in a low, wet area, of which portions are heavily wooded. Currently there are no readily available utilities. The major components of site preparation are:

Site Layout – The limits of the Removal Action and roads and work areas will be delineated by a licensed surveyor. Approximately 13.5 acres have been fenced to control access to the area during the removal activities. The area affected by the sediment and clay removal and ancillary activities includes about 2 acres.

Utility Connections – Electrical and potable water sources/drops will be provided at several locations within the designated site limits, primarily for the pumps, scales, guard shacks and decontamination facilities. Electrical, telephone and data line service will also be provided at the office trailers.

Clearing and Grubbing – Clearing and grubbing will be conducted to provide access to the bayou and surrounding areas for work. The clearing and grubbing, especially in the area west of Old Trousdale Road, will be performed in a manner that minimizes subsurface disturbances. Excavation or ground disturbance beyond the limits of the bayou and ditch will be avoided or, if necessary, minimized to the maximum extent practicable.

Access Roads – Board road work areas will be constructed on the south side of the bayou (east of Old Trousdale Road), and on the north side of the bayou (west of Old Trousdale Road). A temporary access road will also be constructed along the northern bank of the

Bayou Verdine and the western bank of the West Ditch. Access ramps with culverts will be constructed from Old Trousdale Road to the board-road work area and temporary access road. Limestone and/or some other type of bridging material and geotextile will be used to construct the access road and build ramps so they are suitable for equipment and loaded trucks.

Staging Areas – Staging areas will be constructed at the approximate locations shown on Figure 4-1. The staging area for loaded waste containers, easily accessible to Old Trousdale Road, will be constructed with secondary containment in accordance with the hazardous waste regulations for less than 90–day storage. These requirements are described in the Regulatory Compliance Plan (Attachment 2). The water tank storage staging area will also be constructed with secondary containment.

Erosion and Sedimentation Controls – Control measures will be implemented during the site preparation activities and maintained during the course of the project to control erosion and sedimentation. The control measures include the use of geotextiles, silt fences, straw hay bales, earthen dikes, and diversion ditches. The erosion and sedimentation controls are described in detail in the SWPPP (Attachment 7).

Figure 4-1 shows the preliminary site layout, although the site layout may change to some extent from that shown as the work progresses.

4.2 TASK NO. 2 – WATER CONTROL

Bayou Verdine and the West Ditch are tidally influenced and come out of their banks during heavier rainfall events. The weather will be regularly monitored to make preparations in case of a sustained rainfall event. A Contingency Plan, Attachment 6, describes the procedures to be followed to seal off the active work areas and move equipment, waste containers, etc. to higher ground when high water is expected.

The basic criterion that will be used to determine how water will be managed will be what the water comes in contact with. Water that comes in contact with disturbed sediments or other potential EDC-impacted surfaces will be managed as a waste. Water passing over undisturbed sediments (i.e., the current bayou condition), areas where excavated sediments have been removed and

capped, or other areas where there is no direct contact between the contaminated sediments will not be managed as a waste and will be allowed to reenter the bayou downstream of the work area.

EDC-impacted or potentially impacted water sources include but are not necessarily limited to:

- Water remaining in the bayou and ditch prior to sediment removal that cannot reasonably be removed without disturbing the sediments;
- Water that infiltrates in the active work areas during sediment and clay removal activities;
- Precipitation within active work areas and waste containment areas;
- Water decanted from sediment and/or clay disposal containers;
- Water and possible liquid-phase EDC from the wet scrubber (if one is used for the air treatment process); and
- Decontamination fluids.

The water management elements are described below:

Water Diversion – Inflatable bladder-type water retaining structures will be placed on the upstream and downstream ends of the removal areas to block water flow through Bayou Verdine and the West Ditch. Alternatively, sheet piles or sheet piles in combination with the bladder-type structure may be used to dam the water. These water retaining structures will span the entire bayou width completely blocking flow. The water trapped between the water retaining structures downstream of the active work areas will be maintained at a sufficient depth to prevent drying of the sediments and release of volatile emissions. A diversion canal will be constructed to divert the water around West Ditch. Pumping systems, with the total capacity to pump approximately 20,000 gpm, will divert the water to the south of the removal limits of Bayou Verdine. The diversion around Bayou Verdine will be conveyed through a temporary pipe within a diversion ditch. A flow dispersion structure will be constructed to prevent excessive sediment disturbance where the diverted water re-enters Bayou Verdine downstream. Figure 4-1 shows the planned locations of the water retaining structures and diversion ditches. The diversion may be implemented in phases

from upstream to downstream so that the water does not have to be diverted around the entire work area for the duration of the project.

Sheet Piles – Vinyl sheet piles will be used to segregate the bayou and West Ditch into localized work areas. The sheet piles will be installed approximately 5 to 10 feet into the clay and span the entire width of the bayou, providing a stable sidewall and hydraulic barrier during sediment removal. Water will be sequentially pumped from these localized areas as the work progresses. The distance between the sheet pile barriers is estimated to be about 25 feet; however, this distance will be adjusted depending on the configuration of the bayou and the volume of water that seeps into the excavations during removal. The distance will also be adjusted to accommodate removal around the obstructions in the bayou (i.e., the pipelines and the bridge) and also to work under the overhead power lines. (See Figure 4-1.)

Water Removal and Handling – After completion of the sheet pile installation and isolation of a section, the water in that section will be removed, to the maximum extent practicable without removing sediments, and pumped down stream. The remaining water and subsequent water that enters the active removal areas until the first barrier layer component (i.e., flowable fill) is placed will be considered to contain EDC and will be treated. The potentially EDC-contaminated water will be pumped to water storage tanks, which will have a minimum combined storage capacity of about 60,000 gallons. These tanks will be placed in a containment area at the approximate location shown on Figure 4-1. The discharge line from the tanks will be equipped with a sand filter and bag filter to remove suspended solids. The water in the tanks will be sampled and treated on a batch basis. After sampling, two options are available for managing the water. If the concentration of EDC in the water is relatively low and can be managed in compliance with Sasol's Louisiana Pollutant Discharge Elimination System (LPDES) and Air Permit requirements, the water will be treated in Sasol's activated sludge unit (ASU) and discharged in accordance with Sasol's existing LPDES wastewater discharge permit. Alternatively, water with higher EDC concentration will be conveyed to Georgia Gulf for steam stripping. After steam-stripping, the resulting water will be pumped back to Sasol for treatment within Sasol's LPDES treatment system. The water will be conveyed to Sasol in a 3-inch diameter carbon steel line. Water sent for steam striping will be piped via an existing header in the groundwater piping system and then piped back to Sasol after steam stripping. Water

may also be shipped off-site in tanker trucks to a treatment/disposal facility permitted to accept the material. The water containerization and handling procedures are described in the Waste Management Plan (Attachment 3). Sampling and analytical procedures are described in the QAPP (Attachment 1).

4.3 TASK NO. 3 – DEBRIS, SEDIMENT AND CLAY REMOVAL/HANDLING

With the exception of the area underneath the Old Trousdale Road Bridge and the area within the pipeline corridor, an estimated 1.5 to 3.5 feet of sediment and approximately 0.5 feet of the underlying clay will be removed over the entire width of Bayou Verdine and the West Ditch to the lateral limits shown on Figure 4-1. Underneath the Old Trousdale Road Bridge and within the pipeline corridor, only the sediments will be removed. The QAPP (Attachment 1) describes the monitoring procedures that will be followed to define when the sediments and clay have been removed.

The removal sequence and operations are designed to minimize the volume of water that is generated and to minimize the handling of sediments and the potential for producing emissions. They also are designed to prepare the area for immediate placement of the barrier layer. To accomplish this, the excavation and barrier layer placement will occur over several separate divided sections. Each section will be approximately 25 feet wide and separated by sheet piles as described in Task 2. Essentially three sections will be worked at once. In the first section, water and visible debris will be removed followed by removal of the flowable sediments. In the second section, any remaining sediments and the top 0.5 feet of underlying clay will be removed. In the third section, a sacrificial geomembrane will be placed as a temporary vapor barrier, and then the flowable fill will be placed. Due to physical constrains at the site (i.e., the pipelines, power lines, and bridge), in some areas the work will be conducted in two sections; the debris, water, sediment and clay removal will be in the first section, and the flowable fill placement will be in the second section. The activities within the removal sections will be conducted within a vapor control structure with a ventilation system. All the air moved to generate this ventilation system will be treated to remove volatile organic constituents prior to release as summarized below (Task 4) and described in the Emissions Control Plan (Attachment 5).

The Waste Management Plan (Attachment 3) describes the procedures for sampling, classification and characterization of the different waste streams. It also describes the procedures for containerization, handling and shipment of the waste. The removal activities are described below.

Miscellaneous Debris – Miscellaneous, potentially contaminated debris consisting primarily of brush and wood that has fallen into the bayou will be encountered during sediment removal activities. This debris will be removed as it becomes exposed and placed directly into lined and covered roll-off containers. The containers will remain covered except while debris is being added. Animal carcasses (i.e., fish, crabs, and other aquatic and semi-aquatic organisms) that may become trapped and require disposal will be either disposed of with the debris or segregated and placed in 55-gallon drums for disposal.

Flowable Sediment – Planned removal methods for the flowable sediments include a pump and/or vacuum truck. Sediments will be pumped directly to a vacuum box or other sealed container with the vapor discharge from the box being captured and treated. If a vacuum truck is used to remove the sediments, the vapor exhaust from the truck will be captured and treated.

Nonpumpable Sediment and Clay – The clay and nonpumpable sediments will be excavated with a tracked excavator working from the bayou floor. The excavated material will be stockpiled within the vapor control structure and allowed to drain. The roll-off box will be within a vapor control structure (connected to the main structure). Clay will not be removed from beneath the bridge or within the pipeline corridor.

There will be limitations regarding safe working distances underneath the 230KV overhead power lines (Figure 4-1). These limitations will require the use of a smaller vapor control structure beneath the lines (i.e., approximately 13 feet above grade) and therefore the removal equipment and operations will be scaled down within the smaller structure. It may require the use of smaller pumping systems for the flowable material and some of the nonpumpable sediment and clay may have to be removed by hand digging.

4.4 TASK NO. 4 – EMISSIONS CONTROL

Procedures will be implemented throughout the removal and material handling phases of the project to control emissions. These procedures will include the following:

- Sufficient water depths will be maintained within the areas that are not actively being worked;
- The removal activities and placement of the first component of the barrier layer (i.e., flowable fill) will be conducted under a vapor control structure;
- A ventilation system will be operated for this vapor control structure during the periods when there is a potential for emissions as defined by the HASP monitoring program.
- After the clay is removed, the sections will be covered with a sacrificial geomembrane as a vapor barrier and then the flowable fill will be placed as soon as practicable.

The air from the vapor control structure ventilation system, the air exhaust from the vacuum trucks, the air displaced from the sediment and water containers, and any other air sources that potentially could contain volatile emissions will be captured and treated onsite with granular activated carbon. The capture and treatment of the emissions are described in the Emissions Control Plan (Attachment 5) and summarized below. The HASP (Attachment 4) describes the air monitoring procedures that will be implemented to protect workers and the community during the removal action.

Vapor Control Structure – The sediment and clay removal activities and the flowable fill placement will be conducted under a vapor control structure. The structure will be portable with an aluminum frame and covered with a fabric. It will span the entire width of the bayou and be of sufficient length to cover the active work areas. More than one structure, of different sizes, will be used on the project. The length and height of the structure to be used in an area will be dependent on the size of the area and the allowable overhead clearance. As discussed above, power lines will limit the allowable height of the structure in some areas. The vapor control structure ventilation system will be operated as necessary to

contain emissions. EDC concentrations within the control structure will not exceed 100 ppm when there are workers inside. All work within the structure will be in Level B Personal Protective Equipment (PPE) and the air will be monitored as described in the HASP (Attachment 4).

Vapor Treatment System and Associated Conveyance Systems – The vapor treatment system for the air from the vapor control structure will consist of the following components:

- A wet scrubber capable of treating the air sources (optional depending on the vapor concentrations);
- Two carbon canisters connected in series with a combined minimum capacity of 8,000 lbs of activated carbon pellets; and
- All associated blowers, pumps, piping instrumentation and valves.

The carbon units will be installed and operated in a "lead-guard" configuration. Vapor concentrations will be measured between the two in-line units; once it is determined that break-through of the organic vapor has occurred in the lead unit, it will be replaced by the guard canister and a new guard unit will be installed.

In addition to the vapors from the exposed sediments in the vapor control structure, the following describes the additional potential sources that have been identified and how they will be addressed.

- Air displaced from the waste storage containers (e.g., vacuum boxes) as they are filled – to be directed to the treatment system for the vapor control structure or to two 170 lb carbon canisters in series in "lead-guard" configuration.
- Air displaced from the water storage containers as they are filled – to be directed to two 170 lb carbon canisters in series in "lead-guard" configuration.

- The exhaust from a vacuum truck used to remove the sediment (not expected to be the primary removal option) – to be vented to an 8,000 lb carbon system with a configuration the same as the one described above for the vapor control structure. A wet scrubber is an optional additional component of the system depending on the vapor concentrations.

- Air displaced from a tanker truck during transfer of water to the tank to send off-site for disposal – to be directed to two 170 lb carbon canisters in series in "lead-guard" configuration.

Any other sources identified during the course of the project will be contained and treated using similar procedures.

4.5 TASK NO. 5 – BARRIER LAYER PLACEMENT

After completion of sediment and clay removal activities, a composite barrier layer will be placed over the area. Placement will be done sequentially as the removal activities progress downstream. Immediately after clay removal, a sacrificial geomembrane will be placed directly on top of the excavation. The sacrificial geomembrane will serve as a vapor barrier between the time that the contaminated materials have been removed and the flowable fill is placed. It is not an integral part of the completed barrier system. The proposed barrier layer will consist of the following components from the bottom of the excavation upward:

- Approximately six inches of flowable fill;
- One to two feet of compacted clay;
- Geotextile;
- Six inches of riprap; and
- Minimum one foot of silt/sand.

Figure 4-2 is a schematic of the barrier layer. Each component of the barrier layer is described below.

Flowable Fill – Approximately 6 inches of flowable fill will be placed directly on top of the sacrificial geomembrane. The flowable fill will be a mixture of water, sand, cement and

flyash. Flowable fill serves two purposes: 1) to provide a quickly deployable substantial vapor and water barrier so that the remaining barrier system components can be placed with less potential for exposure to workers and the environment; and 2) to provide a stable base upon which clay can be placed and compacted.

Compacted Clay – One to two feet of compacted clay will be placed on top of the hardened flowable fill. The clay component of the barrier system is the primary protective barrier. Clay will be obtained from pre-approved off-site sources and be placed at a moisture content at or greater than the optimum. Clay will be placed and compacted to a permeability of 1×10^{-5} cm/sec or less. If conditions in the bayou make clay placement impractical, a geosynthetic clay liner (GCL) may be used as an alternative. Note that use of a GCL will require the placement of additional sand/silt to restore the bayou substrate to its pre-removal profile.

Geotextile – A geotextile fabric will be placed on top of the clay. The geotextile will serve two functions: 1) as a barrier system structural component to provide support for riprap materials; and 2) as a filter/separator between the clay and overlying layers.

Riprap – Six inches of riprap (e.g., Class 2) will be placed on top of the geotextile to provide a protective barrier for the clay.

Silt/Sand – A minimum 1-foot sand/silt layer will be installed over the riprap layer to reestablish a bottom in the bayou that is similar to preconstruction conditions. The sand/silt cover layer will be placed to a thickness such that the elevations of the bayou substrate are similar to pre-removal conditions.

Only the sand/silt layer will be placed in the pipeline corridor. Access beneath the bridge may also require modifications to the barrier layer components.

The elevations of the top of the flowable fill, the top of the clay and the top of the sand layers will be measured by a licensed surveyor and documented on record drawings in the final report.

A quality assurance/quality control QA/QC) plan was developed to provide the testing and documentation procedures for the barrier layer construction. This QA/QC plan is an appendix to the QAPP (Attachment 1).

4.6 TASK NO. 6 – SITE RESTORATION

After completion of the removal activities, the site will be restored. All equipment and structures used on the project will be removed. Within the low-lying wetlands areas and all areas with vegetative cover, imported fill will be removed to the extent practicable and the site will be returned to the pre-existing grade. These areas will be reseeded, or replanted with vegetation types similar to those that existed prior to the removal action. Fill material in other areas that do not currently have vegetation will either be removed or regraded to elevations consistent with the surrounding topography. Figure 4-3 summarizes the site restoration activities.

A final report will be submitted to USEPA within 60 days of completion of all the work required by the AOC. The final report will conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports." and will include the following:

- A description of the work activities;
- A photo-log of the work progress;
- A good faith estimate of total costs or a statement of actual costs incurred in complying with the AOC;
- A listing of quantities and types of Removal Materials removed off-site or handled on-site;
- A discussion of removal and disposal options considered for those Removal Materials;
- A listing of the ultimate destination(s) of those Removal Materials, including tabulation of the different waste streams and their disposition;
- A presentation of the analytical results of all sampling and analyses performed;
- Copies of signed manifests;
- Appendices containing all relevant documentation generated during the Removal Action;
- Tabulation of the barrier layer QA/QC data; and
- Record drawings of the barrier layer components.

The final report will also include the following certification signed by person who supervised or directed the preparation of the report:

> "Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

The following is the schedule for implementation of the West Ditch Area Removal Action:

Activity	Months After Work Plan Approval
Mobilization and Site Preparation	2
Sediment and Clay Removal	7
Barrier Layer Construction	8
Site Restoration	10
Final Report	12

Note that the site restoration activities may not include all of the plantings within this time frame because some vegetation may require planning during a specific season. Establishment of the vegetation may take several growing seasons.

ENTRIX. 1999. Bayou Verdine Investigation: Volume I, Nature and Extent Investigation, Lake Charles, LA. ENTRIX, Inc., October 12, 1999.

ENTRIX. 2001a. Bayou Verdine Investigation: Volume IV, Baseline Human Health Risk Assessment, Lake Charles, LA. ENTRIX, Inc., April 12, 2001.

ENTRIX. 2001b. Bayou Verdine Investigation: Volume III, Baseline Ecological Risk Assessment, Lake Charles, LA. ENTRIX, Inc., March 30, 2001.

URS Corporation (URS). 2002. Engineering Evaluation Cost Analysis. Bayou Verdine Area of Concern, July 2002.